

WHAT IS CLAIMED IS:

1. Foamable interpolymer resin particles comprising:

5 about 20% to about 80% by weight polyolefin and from about 80% to about 20% by weight of a polymerized vinyl aromatic resin forming an interpenetrating network of polyolefin and vinyl aromatic resin particles;

10 from about 1.5% by weight to about 20% by weight of a blowing agent and from about 0.1 to about 5 parts by weight limonene based on 100 parts by weight of said interpolymer particles, impregnated in said interpolymer resin particles.

15 2. Foamable interpolymer resin particles of claim 1 wherein said weight of said polymerized vinyl aromatic resin ranges from about 45% to about 80% by weight and wherein said weight of said polyolefin ranges from about 20% to about 55% by weight based on the weight of said interpolymer particles.

20 3. Foamable interpolymer resin particles of claim 1 wherein said vinyl aromatic resin is selected from the group consisting of vinyl aromatic homopolymer and vinyl aromatic copolymer, which is polymerized in said polyolefin particles.

25 4. Foamable interpolymer resin particles of claim 3 wherein said vinyl aromatic resin consists of vinyl aromatic copolymer.

30 5. Foamable interpolymer resin particles of claim 3 wherein said vinyl aromatic copolymer is a copolymer of styrene and butyl acrylate.

6. Foamable interpolymer resin particles of claim 3 wherein said vinyl aromatic resin consists of vinyl aromatic homopolymer.

5 7. Foamable interpolymer resin particles of claim 6 wherein said vinyl aromatic homopolymer is styrene.

8. Foamable interpolymer resin particles of claim 1 wherein said blowing agent is selected from the group consisting of n-propane, n-butane, iso-butane, 10 n-pentane, iso-pentane, n-hexane, neopentane, cyclobutane, cyclopentane, methyl chloride, ethyl chloride, methylene chloride, trichlorofluoromethane, dischlorofluoromethane, dichlorodifluormethane, chlorodifluoromethane and 15 dichloroetetrafluoroethane, and mixtures thereof.

9. Foamable interpolymer resin particles of claim 8 wherein said blowing agent is selected from the group consisting of n-pentane, iso-pentane, neopentane, cyclopentane, and mixtures thereof.

20 10. Foamable interpolymer resin particles of claim 1 wherein said polyolefin is polyethylene.

11. Foamable interpolymer resin particles of claim 1 wherein said limonene is selected from the group consisting of d-limonene, l-limonene, and dl- 25 limonene.

12. Foamable interpolymer resin particles of claim 11 wherein said limonene is d-limonene.

13. Foamable interpolymer resin particles of claim 1 wherein said limonene ranges from about 0.1 to 1 30 parts by weight based on 100 parts by weight of said interpolymer particles.

14. A foamed article with at least improved physical properties produced from the foamable interpolymer resin particles of claim 1.

5 15. A process for forming the foamable interpolymer resin particles of claim 1 comprising the steps of blending said blowing agent and said limonene together to form a mixture and adding said mixture to said interpolymer resin particles in the impregnation step of said interpolymer resin
10 particles.

16. A process for forming the foamable interpolymer resin particles of claim comprising the steps of adding said blowing agent and said limonene separately to the interpolymer resin particles in
15 the impregnation step of said interpolymer resin particles.

17. A process of claim 15 wherein said polyolefin is polyethylene and said vinyl aromatic resin is styrene.

20 18. A process of claim 16 wherein said polyolefin is polyethylene and said vinyl aromatic resin is styrene.